UNIVER®

Mod. **TCxD**

DeviceNet

FIELDBUS

MODULE

FOR

PNEUMATIC

MANIFOLD

VALVES

&

I/O SIGNAL

- Industry standard connection **M8-M12-M23-7/8"**
- Integrated connection to manifold valves - **ISO VDMA & Compact Series**
- 24 coils valves capability
- Auxiliary max capability of 64digital input + 40digital output
- Optical & via network Diagnostic Monitor
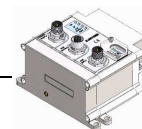- IP 65 protection grade

Automation

rev.04a8

INDEX

Every conceivable measure has been taken to ensure the correctness and completeness of this documentation. However, as errors can never be fully excluded we would appreciate any information or ideas at any time.

/-----------/

We wish to point out that the software and hardware terms as well as the trademarks of companies used and/or mentioned in the present manual are generally trademark or patent protected.

Important note

|	
Personnel Qualification	*To ensure fast installation and start-up of the units described in this manual, we strongly recommend that the following information and explanations are carefully read and abided by.*
	The use of the product detailed in this manual is exclusively geared to specialists having qualifications in PLC programming, electrical specialists or persons instructed by electrical specialists who are also familiar with the valid standards. UNIVER S.p.A. declines all liability resulting from improper action and damage to UNIVER S.p.A. products and third party products due to non-observance of the information contained in this manual.
Intended Use	*For each individual application, the components supplied are to work with a dedicated hardware and software configuration. Modifications are only permitted within the framework of the possibilities documented in the manuals.* *All other changes to the hardware and/or software and the non-conforming use of the components entail the exclusion of liability on part of UNIVER S.p.A.* *Please direct any requirements pertaining to a modified and/or new hardware or software configuration directly to UNIVER S.p.A.*
Applycation Notes	*Attention* *Switch off the system prior to working on bus modules!* *In the event of deformed contacts, the module in question is to be replaced, as its functionality can no longer be ensured on a long-term basis.*
	ESD (Electrostatic Discharge) *The modules are equipped with electronic components that may be destroyed by electrostatic discharge. When handling the modules, ensure that the environment (persons, workplace and packing) is well grounded. Avoid touching conductive components, e.g. gold contacts.*
Attention	*Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you: • identify a hazard • avoid a hazard • recognize the consequence*

Abbreviation

DI Digital Input
DO Digital Output
I/O Input/Output
ID Identifier
HW Hardware
SW Software
LSB Least Significant Digit
MSD Most Significant Digit
VLS24 Logic & Sensor power supply
VA24 Auxiliary Output power supply
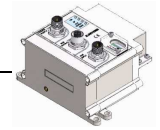
Legend of symbols

Important Note

Attention Danger

More Information

Recycling / Recyclable Material

Terms Definition

Auto Device Replacement	This refers to the ADR feature of a TCxD device. With ADR active, any device on the DeviceNet link may be removed and replaced with an out-of-the-box checkmark compliant DeviceNet device. The ADR feature will result in downloading the values of the configuration parameters of the EDS file of the removed device to the new device
Auto Start Mode	A feature that lets the device "up and running" without the prerequisite to configure any of the EDS parameters Using Auto Start Mode will result in a scan list within the adapter that stores the modules identity information.
Autobaud	A feature in devices on the DeviceNet network that causes them to listen to communications on the network and set their own baudrate to match the network rate.
Baudrate	Rate of communications between devices on the DeviceNet network
Change of State (COS)	DeviceNet communications method in which the adapter sends data based on detection of any changed value within the input data. Data is independently received based on a change of state from the sender. Data in both directions can be acknowledged or unacknowledged depending on the run-time configuration of the system.
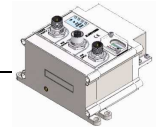
Master	A DeviceNet network device that initiates communication with DeviceNet slave devices to retrieve data. The master only receives unprompted data when the slave is enabled for COS and there is a change in the device's operating state.
Offline	State of the adapter when it is not powered or maintaining normal communication exchanges with other DeviceNet devices
Online	State of the adapter when it is powered and maintaining normal communication exchanges with other DeviceNet devices
Polled	DeviceNet communications method in which a module sends data in response to received data.
Slave	A DeviceNet network device that cannot initiate communication (except when configured with COS enabled) but responds to a DeviceNet master device

System descripiton

The TCxD is a modular fieldbus slave device for controlling manifold valve and digital input and output which use *DeviceNet* fieldbus.

The system structure here described consists of an MANIFOLD OUTPUT INTERFACE (1), of an FIELDBUS module (2) of an AUXILIARY DI/DO modules (3), the end module (4) completes the system.
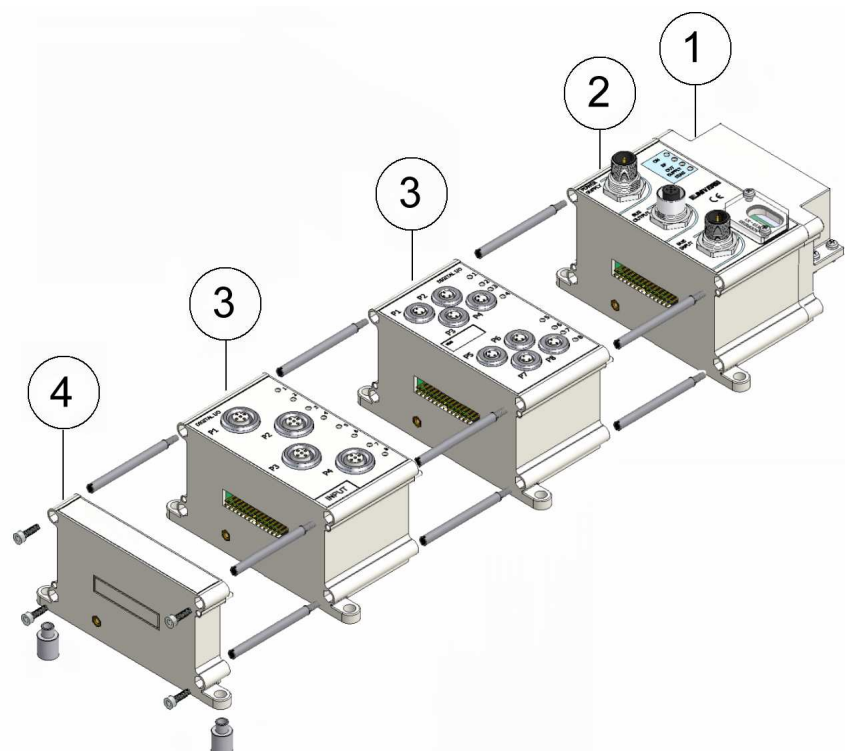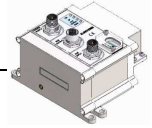
Module installation

Before installing the module, verify that all its parts are intact and have not been damaged during transport, pay attention to the overall dimentions.

We do recommend to fix the device in the specified hole with M4 screws on a single metal surface to grant a good ground connection
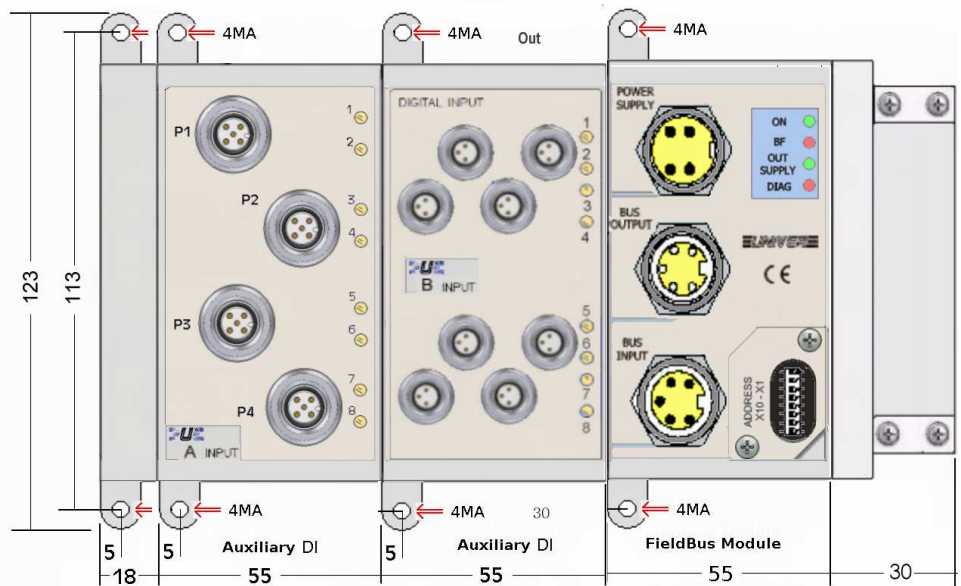
The overall length changes according to the numbers of the auxiliary I/O modules used and manifold valves type.

P10 Compact manifold dimentions

P10B series

22 + (n x 11)

99
110

P10F series

P15 Compact manifold dimentions

22 + (n x 16.5)

125
135

P15F series

52 + (n x 16.5)mm

125
135

P15B series

D(mm) VDMA 26 = N.valves x 27 + 60
D(mm) VDMA 18 = N.valves x 19 + 56
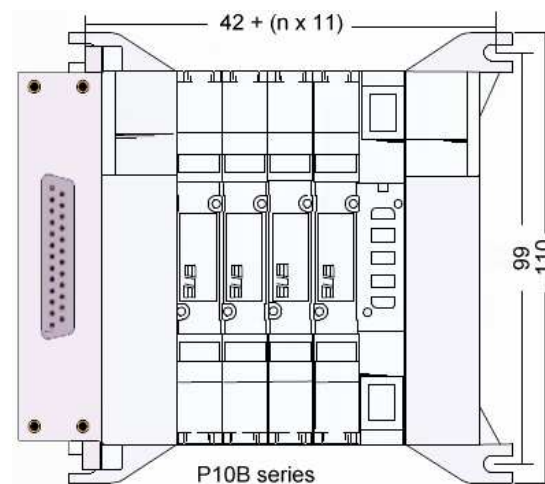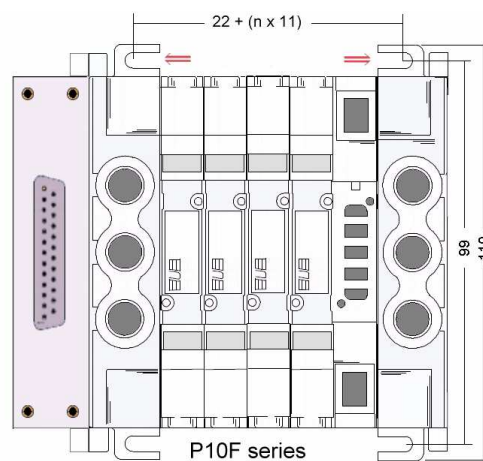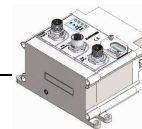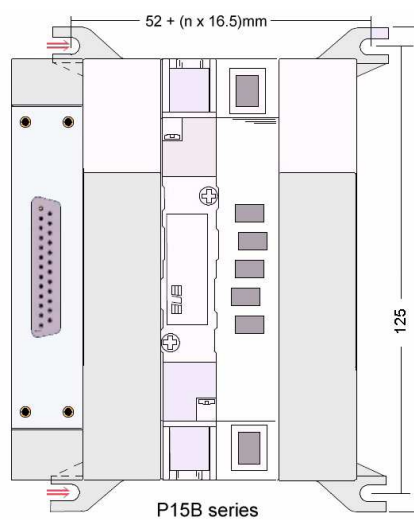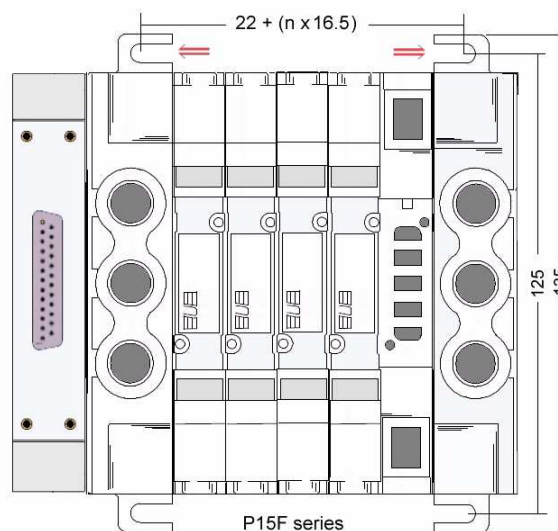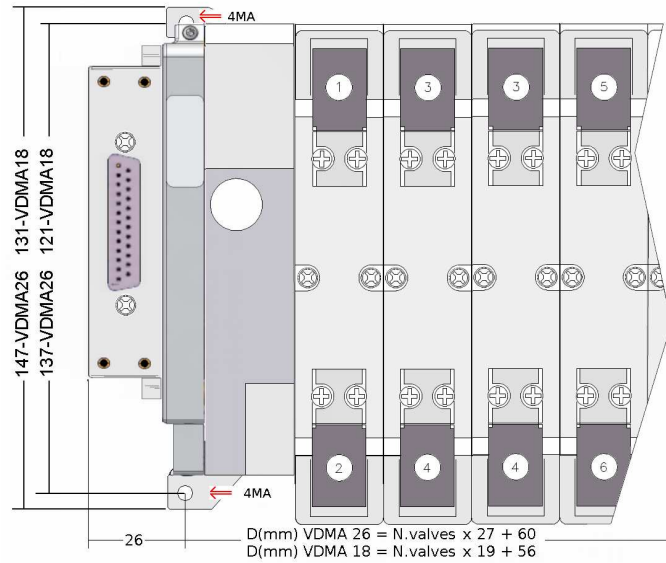
EDS file specification

EDS is an abbreviation of Electronic Data Sheet. EDS file on disk contains configuration data for specific device types, information about configurable attributes for a device, including object addresses of each parameter and provide for an open configuration tool while reading the device information and recognizing the device characteristics.

Fieldbus module connectors pin assignement
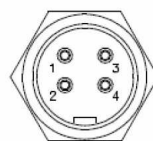
Aux Supply (MALE)
7/8 " 4 pins
view front connector

Pin	Function	
1	VA24	AUX OUT Supply
2	/	
3	/	
4	0VA	AUX Com Supply

DeviceNet

NET OUT (FEMALE)
7/8 " 5 pins
view front connector

NET IN (MALE)
7/8 " 5 pins
view front connector

Pin	NET INP - OUT
1	Drain
2	V+
3	V-
4	CAN_High
5	CAN_Low

UNIVER®

Module Power

Connect the module to the appropriate DeviceNet network cable
The PE connection has to be connected externally to the ground

FieldBus Out
Terminal Network
Resistor

Auxiliary Supply
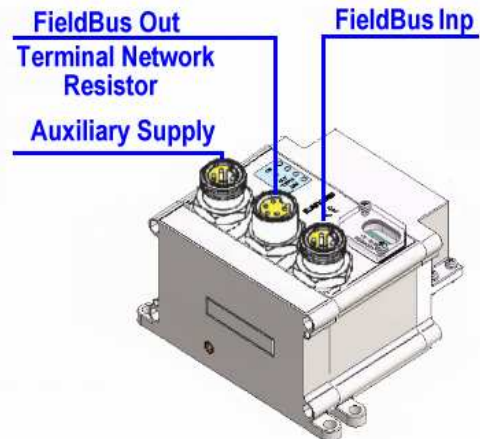
FieldBus Inp

The fieldbus module requires a dual power supply:
VLS24 (24Vdc) for the Logic & Sensor supply
VA24 (24Vdc -10%+15%) for output and manifold valves.

Supply Example
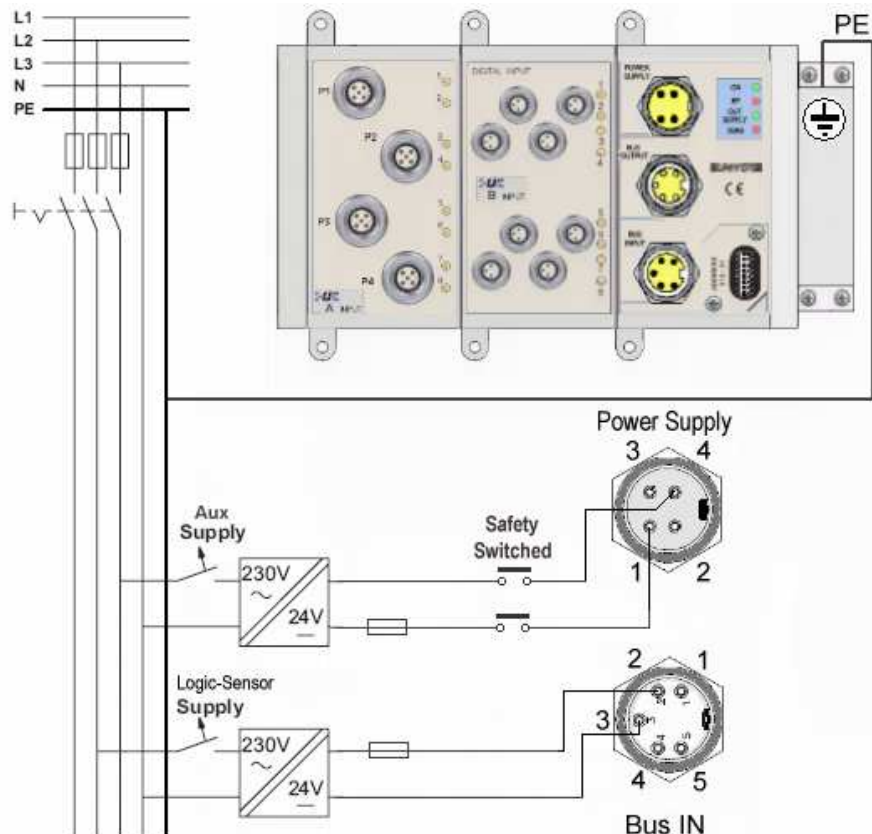
Dual Power Supply System
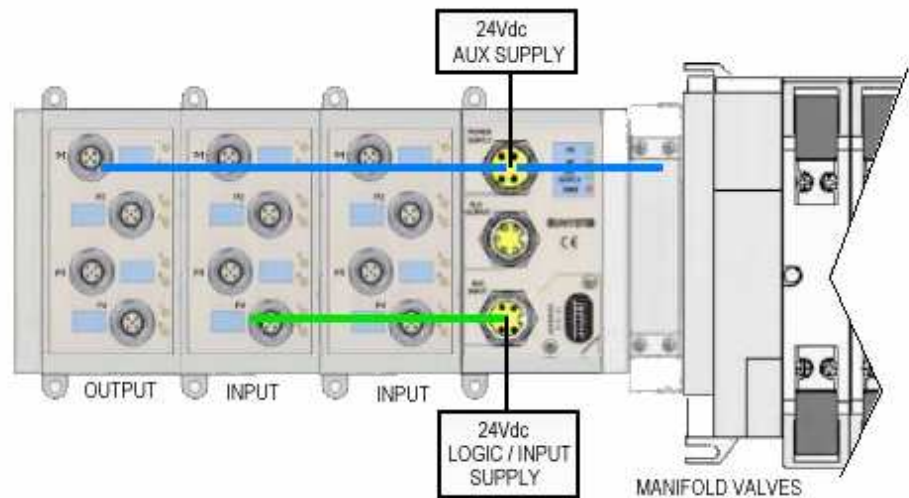
Triple Power Supply System
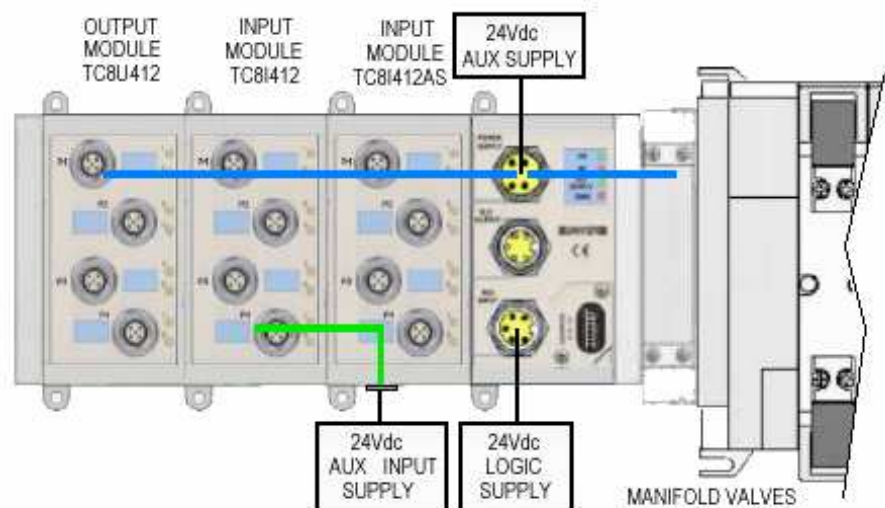
DeviceNet Network connection

DeviceNet specifications defines for a maximum network distances the main trunk line and drop lines. Maximum distances depend on the baud rate used on the network:

Baud Rate	Trunk Line Length		Drop Length			
	Maximum Distance		Maximum		Cumulative	
	Meters	Feet	Meters	Feet	Meters	Feet
125k baud	500 m	1640 ft	6 m	20 ft	156 m	512 ft.
250k baud	250 m	820 ft	6 m	20 ft	78 m	256 ft.
500k baud	100 m	328 ft	6 m	20 ft	39 m	128 ft.
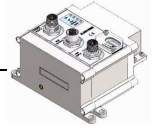
DeviceNet I/O Comunication

The fieldbus adapter module receives data from and returns data to the master through the following I/O connections:

Change of State (COS) – Adapter sends data based on detection of any changed value within the input data. Data is independently received based on change of state from the sender. Data in both directions can be acknowledged or unacknowledged depending on the run time configuration of the system.

Polled – Adapter sends data in response to received data.

Terminal network resistor

A DeviceNet must be terminated at each end of the trunk line. The host controller and the last slave on the network must always be terminated to eliminate reflections, even if only two nodes are present.

The DeviceNet specifications for the terminating resistor are:

- 121 ohm
- 1% metal film
- ¼ Watt
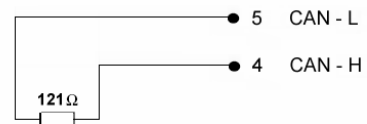
How to Set the Module Address

Max Valid Node Address are **01** to **63**

Each module is delivered set for node address **63**

The Dip or Rotary switches, are located

on the top panel.
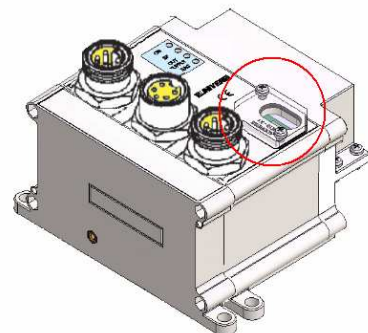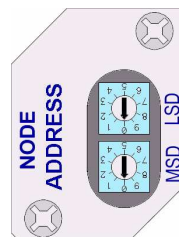
Rotary Switch	**MSD** X10 *Most Significant Digit*	**LSD** X1 *Least Significant Digit*
Address Set	**6**	**3**

   To set the address, remove the cover, tourn rotary switch to the desired address, tourn OFF the device and then tourn ON again(The address is read only at power up) Remember to close the cover cap again to guarantee the protection degree

Baudrates function mode

The adapter supports these rates:

125Kbaud	250 Kbaud	500 Kbaud

Rotary Switch	MSD	LSD			
Boudrates Mode		125	250	500	Autobaud
Setting Code	9	0	1	2	3

The device scans the setting code at firstly power supply it.

Autobaud function:

The module detects the primary DeviceNet network baudrateS and automatically sets its own baudrateS to match the network.

The autobaud detection function is operative if you connect the device in a previously configured and running network.

To change the operation speed it is necessary to set the master Offline, to edit the new baudrates, to turn off wait a few second and turn on the Slave.

Module Diagnostic and Status indicators
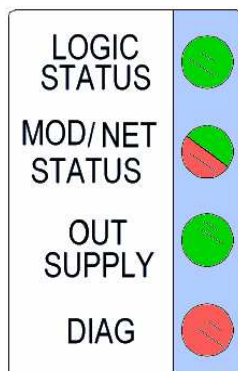
Des.	Colour	Meaning
LOGIC STATUS	Green LED	System ready
	ON:	Node power ON
	OFF:	Node off-line or not powered
MOD/NET STATUS	Green LED	Net Status
	ON:	On line connected
	OFF:	Not On line
	FLASH:	On line Not connected
	Red LED	Fault Status
	ON:	Unrecoverable fault
	FLASH:	Recoverable fault
OUT SUPPLY	Green LED	Actuator Supply
	ON:	Actuator Supply present
	OFF:	Actuator Supply missing
DIAG	Red LED	Diagnostic
	OFF:	No error
	FLASH:1	Actuator supply missing
	FLASH:2	Output overload
	FLASH:3	High noise level
	FLASH:4	Auxiliary Modules Fail
	FLASH:5	No I/O module detected
	FLASH:6	Reserved
	FLASH:7	Reserved

Module Specifications

FieldBus Data

Bus Input Connector	Circular 7/8 Male 5 pins
Bus Output Connector	Circular 7/8 Female 5 pins (optional)
Bus Function Displays	Module NETWORK Status_red-green
Auxiliary Function display	Logic Supply_green, Output Supply_green, Diag_red
Address Slave	Switchable 00 to...63
Communication Rate - AutoBode mode	125-250-500KBaude
FieldBus Connection Mode	Group 2 only-Polled-COS
EDS Filename	TCXDxx_xx.EDS

Electrical Data

Auxiliary output Supply connector	Circular 7/8 Male 4 pins(1-VA24,4-OVA)
Logic - Digital Input Voltage Supply VLS24	11...25 Vdc
Logic Nominal Current (max capability)	100...450mA
Digital Inputs-max Current	1A @ 20°C - overload protected (20mA per input)
Output voltage Supply VA24	24 Vdc -10+15% (valves coil range)
Output Current-VA24 (max capability)	2,5A max - overload protected
Output Manifold Valves (max capability)	24 coil max - (12 bistable valves - 1,5A per 12 coils)
Auxiliary Digital Output (max capability)	max 40 digital output
Auxiliary Digital Input (max capability)	max 64 digital input

Environmental Conditions

weight	370g	
Dimentions	85 x 123 x 75 mm	
MTBF - Mean Time Between Failures	197.359 Hours	50°C
Protection Degree	IP 65	IEC 60529
Relative humidity	5 to 85%	IEC 60068-2-30
Operating Temperature	5°C ÷ 50°C	IEC 60068-2-1
Storage Temperature	-25°C ÷ 80°C	IEC 60068-2-2
Vibration	5g tested 10-500Hz	IEC 60068-2-6
Shock operating	22g peak	IEC 60068-2-27
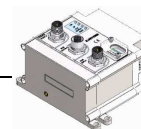
Valves Coil & Input/Output Slot Allocation
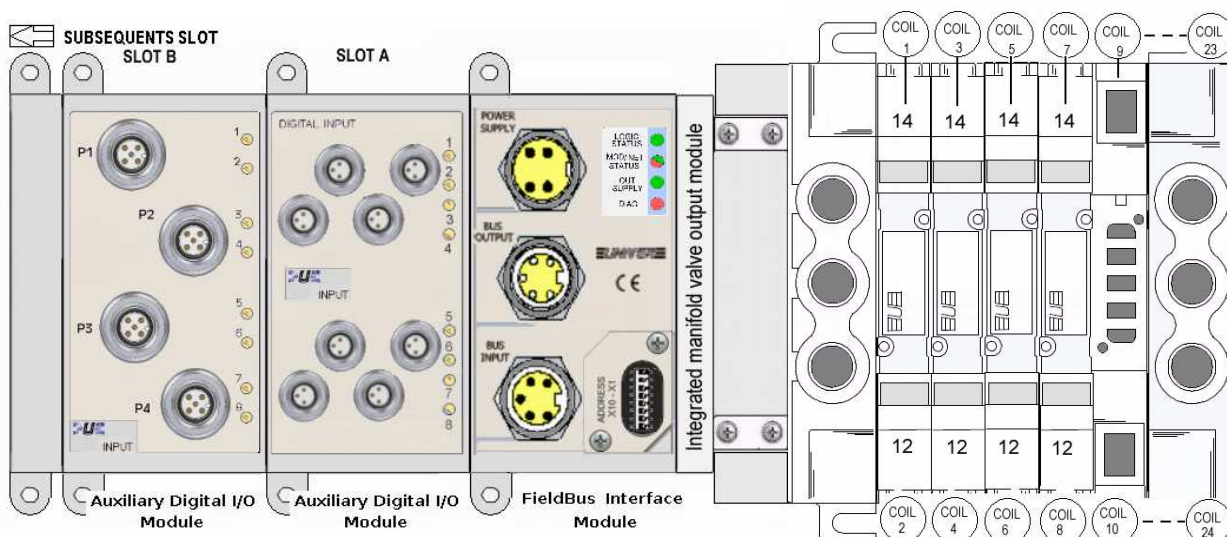
👉 *The physical position of the I/O expansion modules establishes the increment of the Data-Byte allocation according to a sequence which evolves increasingly from the FieldBus module to the left.*

Digital I/O data mapping

	PRODUCES INPUT BYTE	CONSUMES OUTPUT BYTE	I/O BITS
DI-digital input MAX	8		64
DO-digital output MAX		5	40
Manifold digital output		3	24
MAIN diagnostic mode	1		
EXTENDED diagnostic mode	8		

Manifold valves digital outputs consumes-data mapping

		Coil	Byte-Bit Consumes	Coil	Byte-Bit Consumes	Coil	Byte-Bit Consumes
Valve Function	side**14**	1	0-1	9	1-0	17	2-0
	side**12**	2	0-2	10	1-1	18	2-1
	side**14**	3	0-3	11	1-2	19	2-2
	side**12**	4	0-4	12	1-3	20	2-3
	side**14**	5	0-5	13	1-4	21	2-4
	side**12**	6	0-6	14	1-5	22	2-5
	side**14**	7	0-7	15	1-6	23	2-6
	side**12**	8	0-0	16	1-7	24	2-7

Auxiliary Digital OUTPUT consumes-data mapping

Module Slot		Byte-Bit Consumes				
		A	B	C	D	E
Port-Pin Function	P 1-4	3-0	4-0	5-0	6-0	7-0
	P 1-2	3-1	4-1	5-1	6-1	7-1
	P 2-4	3-2	4-2	5-2	6-2	7-2
	P 2-2	3-3	4-3	5-3	6-3	7-3
	P 3-4	3-4	4-4	5-4	6-4	7-4
	P 3-2	3-5	4-5	5-5	6-5	7-5
	P 4-4	3-6	4-6	5-6	6-6	7-6
	P 4-2	3-7	4-7	5-7	6-7	7-7

Auxiliary Digital INPUT produces-data mapping

Module Slot		Byte-Bit Produces						
		A	B	C	D	E	G	H
Port-Pin Function	P 1-4	0-1	1-0	2-0	3-0	4-0	5-0	6-0
	P 1-2	0-2	1-1	2-1	3-1	4-1	5-1	6-1
	P 2-4	0-3	1-2	2-2	3-2	4-2	5-2	6-2
	P 2-2	0-4	1-3	2-3	3-3	4-3	5-3	6-3
	P 3-4	0-5	1-4	2-4	3-4	4-4	5-4	6-4
	P 3-2	0-6	1-5	2-5	3-5	4-5	5-5	6-5
	P 4-4	0-7	1-6	2-6	3-6	4-6	5-6	6-6
	P 4-2	0-0	1-7	2-7	3-7	4-7	5-7	6-7

Diagnostic function setting and mapping

Is possible to setting diagnostic function in two different mode:
**MAIN** and **EXTENDED**.

The default setting of diagnostic mode expected inside the EDS file is "**MAIN**".

For change the diagnostic in **EXTENDED** mode following procedure:

Set address to **99**, turn off the device, wait a few second and turn on the device, set the real address network and turn off the device, wait a few second and turn on the device, to set the device in the **"MAIN"** mode repeat the operation using the address **88.**

When you change the diagnostic mode, you should remember to change the configuration of produces data, otherwise the device will not be recognize.

The diagnostic Data bytes are available as Produces Byte subsequent to the Produces bytes by of Auxiliary Digital Inputs.
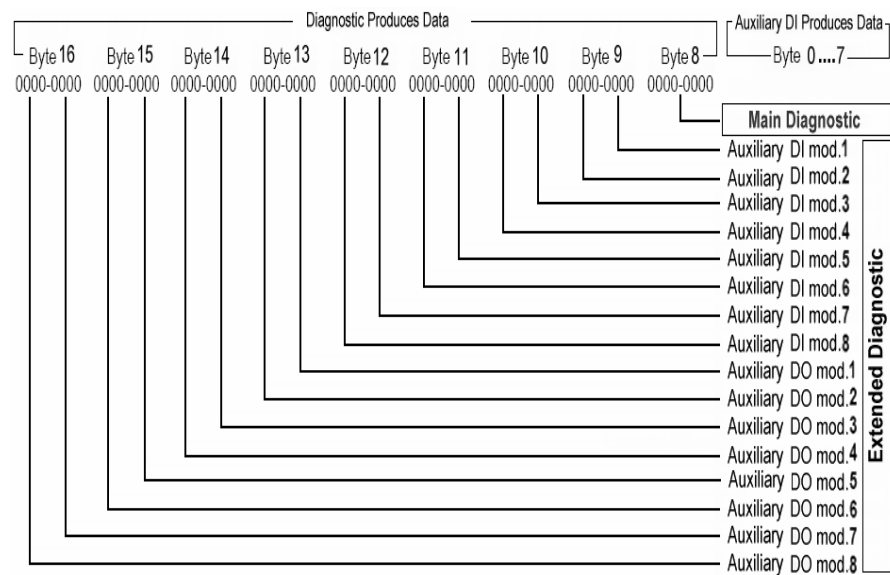
Bit Code	**MAIN** DIAGNOSTIC BITS FUNCTION
0	This Bit becomes active when the VA24 is no power supply (Power Supply connector). In this condition the coils of the valves are not supplied to even if the logic command is ON.
1	This Bit becomes active when the device is in fault condition (replace the device)
2	This Bit becomes active, when one or more of auxiliary digital outputs are overloaded or in short circuit condition.
3	This Bit becomes active, when local bus communication errors are detected, caused by an high level of noise coupling the cables connected to the auxiliary module (remove the cause)
4	This Bit becomes active when an overload or short circuit is present in one or more input module connectors.
5/6	Reserved
7	This Bit becomes active, when inside the extended diagnostic is active one bit.
The **MAIN** diagnostic mode produce one(1) Byte which summarizes all the system errors	

Nibble Code	**EXTENDED** DIAGNOSTIC NIBBLE FUNCTION
0000	This Value indicate no error present
0001	This Value indicate VA24 voltage missing, only auxiliary output module,☺
0010	This Value indicate one or more outputs in overloaded or in short circuit condition ☺
0011	This Value indicate detection of internal bus communication errors, caused by an high level of noise coupling the cables connected to the module
0100	This Value indicate module fail
0101	This Value indicate overload or short circuit is present in one or more input module connectors
The **EXTENDED** diagnostic mode produce eight (8) Byte in which they come defined the diagnostic functions of the single auxiliary modules------Code value from **0110** to **1111** are not assigned-------☺ Output module only	
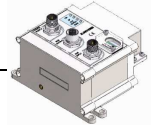
Auxiliary Digital I/O Modules Specifications

The auxiliary inputs and outputs modules use 5 pins M12 female connectors.
For the input version they use 3 pins M8 female connector.
Every module controls 8 signals, 2 signals for M12 connector version, 1 signal for M8 connector version.

Input Module Specification

Part Code	TC8I412	TC8I808	TCR32ID
Termination type	Circular 4 x M12	Circular 8 x M8	Sub D 2 x 25pins
Input per Module	8	8	16+16
Switching Logic	2 or 3 wire PNP devices		
Operating Voltage Supply **VS24**	24V dc +/- 25%		
Power dissipation max per module	0,18W		
Sensor Source Current per input	20mA		
Signal logic "OFF"	-30V dc to 5V dc		
Signal logic "ON"	13V dc to 30V dc		
Typical input Current ON state max	5mA		
Typical input Current OFF state max	1,1mA		
Nominal Ipedence	5Kohm		
Delay Time ON to OFF	1mS		
Insulation Voltage (input to PE-VS24 to PE)	2KV-1KV		
Diagnostic mode via network	For Sensor Supply overload or short circuit fault		
Status Display	Valid Input – yellow indicator ON		

Output Module Specification

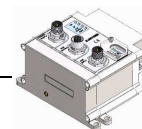| Part Code	TC8U412	TCR32UD
Termination type	Circular 4 x M12 size	Sub D 2 x 25pins
Output per module	8	16+16
Switching Logic	Sourcing Output	
Output Voltage Supply **VA24**	24 V dc +/- 15% (valves coil range)	
Power dissipation max per module	1,8W	5.6w
ON state Current per Output	0.3A	
ON state Surge Current per Output 10mS	1.0A	
Overload protected per Output	1.2A	
Module Current rating max	2.5A	
Diagnostic mode via network	For Output Signal overload or short circuit fault	
Status Display	Energized Output – yellow indicator ON	

Environmental Conditions

weight	370g	
Dimentions	55 x 123 x 60mm	
MTBF - Mean Time Between Failures	197.359 Hours	50°C
Protection Degree	IP 65	IEC 60529
Relative humidity	5 to 85%	IEC 60068-2-30
Operating Temperature	5°C ÷ 50°C	IEC 60068-2-1
Storage Temperature	-25°C ÷ 80°C	IEC 60068-2-2
Vibration	5g tested 10-500Hz	IEC 60068-2-6
Shock operating	22g peak	IEC 60068-2-27

⚠️ *Make sure all connectors and caps are securely tightened to properly seal the connections against leaks and maintain IP65 requirements. I/O cable length should be less than 20 meters*

(1) Max current value for all system outputs, calculate derating factor for multiple output modules.

Auxiliary Digital I/O Modules Connection

COD.**TC8I412**
N.8 Digital Input - M12
COD.**TC8I412AS**
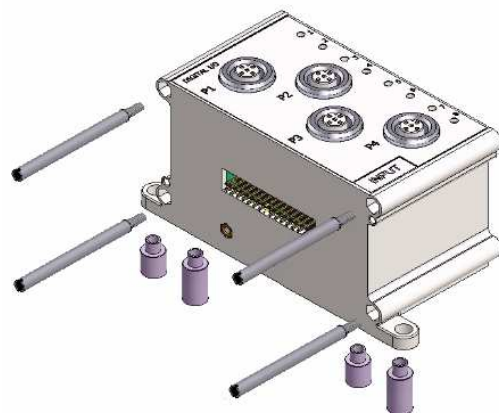N.8 Digital Input - M12 AUX-SUPPLY
COD.**TC8U412**
N.8 Digital Output - M12

Input / Output
M12 (Female)
Looking into sockets

Pin	IN	OUT
1	VS24	NC
2	INP 2	OUT 2
3	0VAS	
4	INP 1	OUT 1
5	NC	

VAUX
auxiliary power supply

M12 (Female)
Looking into sockets

Pin	Description
1	VAUX IN
2	0V
3	0V
4	VAUX OUT
5	NC

COD.**TC8I808**
N.8 Digital Input - M8

Input M8 (Female)
Looking into sockets

| Pin	IN
1	VS24
4	INP
3	0VAS
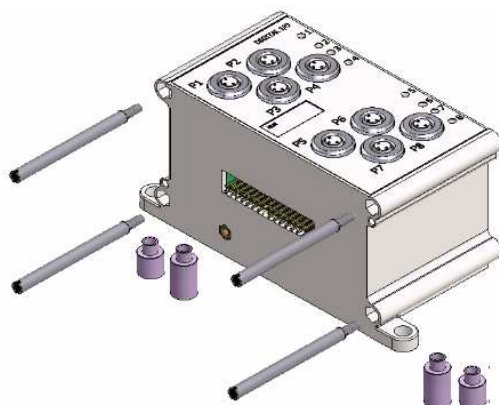
COD. **TCR32UD**
16+16 Digital Output
Remote module

COD. **TCR32ID**
16+16 Digital Iutput
Remote module

P1-P2 Pin No.	Part Code TCR32ID	Part Code TCR32UD
1	Input 0-0	Output 0-0
2	Input 0-1	Output 0-1
3	Input 0-2	Output 0-2
4	Input 0-3	Output 0-3
5	Input 0-4	Output 0-4
6	Input 0-5	Output 0-5
7	Input 0-6	Output 0-6
8	Input 0-7	Output 0-7
9	Input 1-0	Output 1-0
10	Input 1-1	Output 1-1
11	Input 1-2	Output 1-2
12	Input 1-3	Output 1-3
13	Input 1-4	Output 1-4
14	Input 1-5	Output 1-5
15	Input 1-6	Output 1-6
16	Input 1-7	Output 1-7
17/18	NC	NC
19/20	0V	0V
21/22	+INP SUPPLY	NC
23/24	0V	0V GND
25	SHIELD	SHIELD
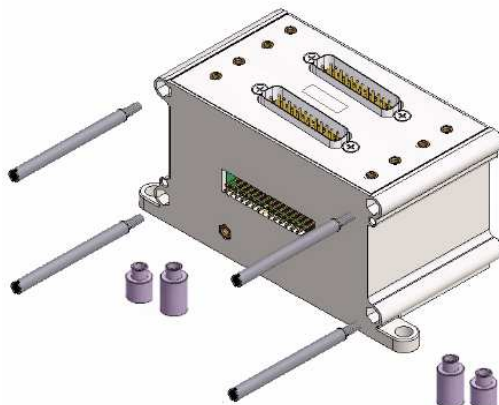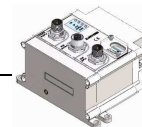
Identification Label

Model

Voltage Supply Range
Nominal Current Supply -VL24

UNIVER CE

Mod. TCxD
Voltage Supply   IP65   2007
17..30VDC 100mA   S/N   82824

Protection Degree

Production Year

Serial No.

Modules Assembly System

☞ **The auxiliary inputs and outputs modules will be connected to FieldBus module on the opposite side of the manifold valves.**
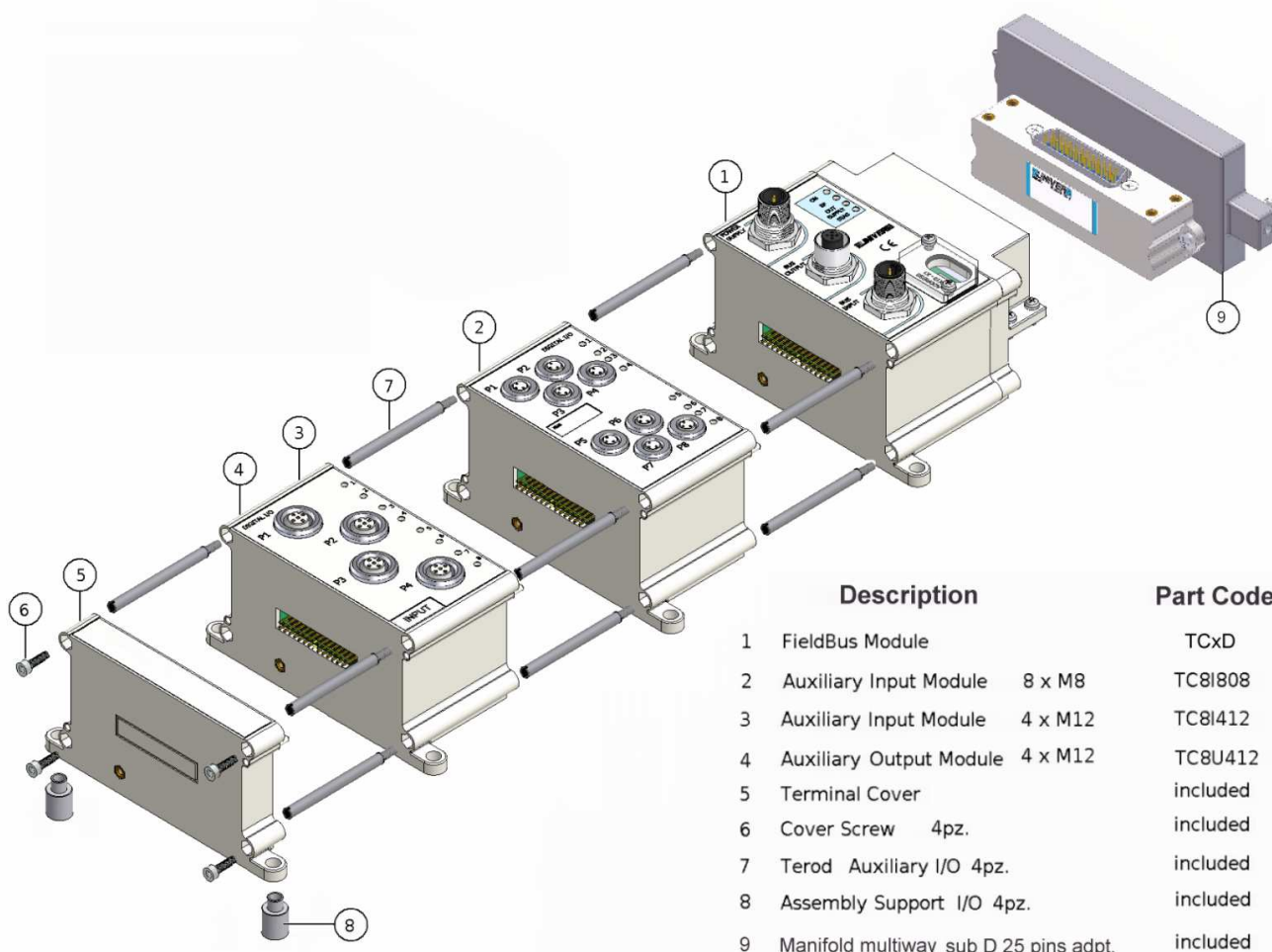
	Description		Part Code
1	FieldBus Module		TCxD
2	Auxiliary Input Module	8 x M8	TC8I808
3	Auxiliary Input Module	4 x M12	TC8I412
4	Auxiliary Output Module	4 x M12	TC8U412
5	Terminal Cover		included
6	Cover Screw	4pz.	included
7	Terod Auxiliary I/O 4pz.		included
8	Assembly Support I/O 4pz.		included
9	Manifold multiway sub D 25 pins adpt.		included
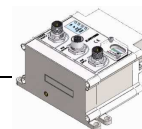
| Code	Description	Size	Protection Degree
TZ-M578T	DeviceNet (5-pins, male) Network termination (120ohm)	7/8	IP65
TZ-F578	DeviceNet (5-pins, female)	7/8	IP65
TZ-M578	DeviceNet (5-pins, male)	7/8	IP65
TZ-M578T	DeviceNet (5-pins, male) Network termination (120ohm)	7/8	IP65

*Additional accessories for connecting can be found on www.univer-group.com webside*

Conformity Declaration

Univer S.p.A. declares under the own responsibility that the Device in object is in compliance with the EMC directive 89/336/EEC, with amendaments for 92/31/EEC and 93/68/EEC through conformance whith the following Harmonised European standards:

|		Harmonised European standards:
Date:	**22 of February, 2007**	EN 61000-4-3 (1996)
Device:	Multi I/O Manifold Valves Control	EN 61000-4-6 (1996)
Term:	**TCxD**	EN 61000-4-2 (1996)
		EN 61000-4-4 (1996)
Manufacturer:	**Univer S.p.A.**	EN 61000-4-5 (1995)
	Via Eraclito, 31	EN 61000-4-6 (1996)
	20128 Milano	EN 61000-4-8
	ITALY	EN 61000-4-11
CE	tel. +39 02252981	EN 61000-6-2 (1995)
	fax. +39 0225298310	EN 61000-6-4 (1993)

R&D Manager signature: _____
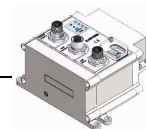
System configuration examples
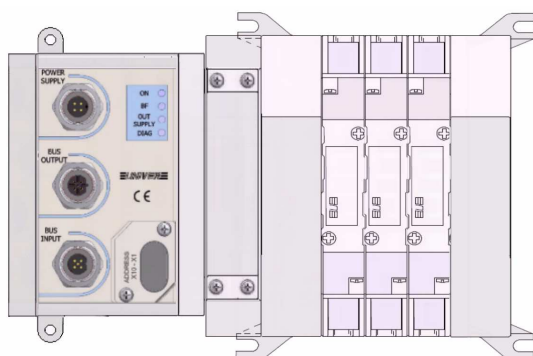
TCxx fieldbus device with
integrated COMPACT MANIFOLD

TCxx fieldbus device with
integrated COMPACT MANIFOLD
and remote expantion module
for distribuited manifolds connection
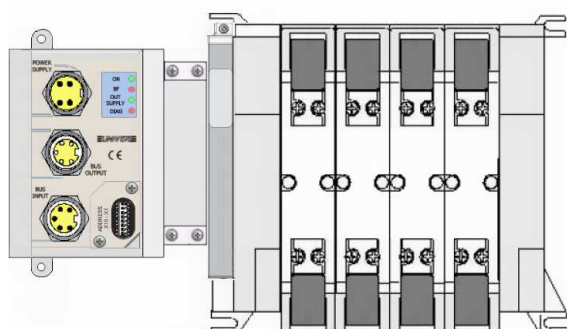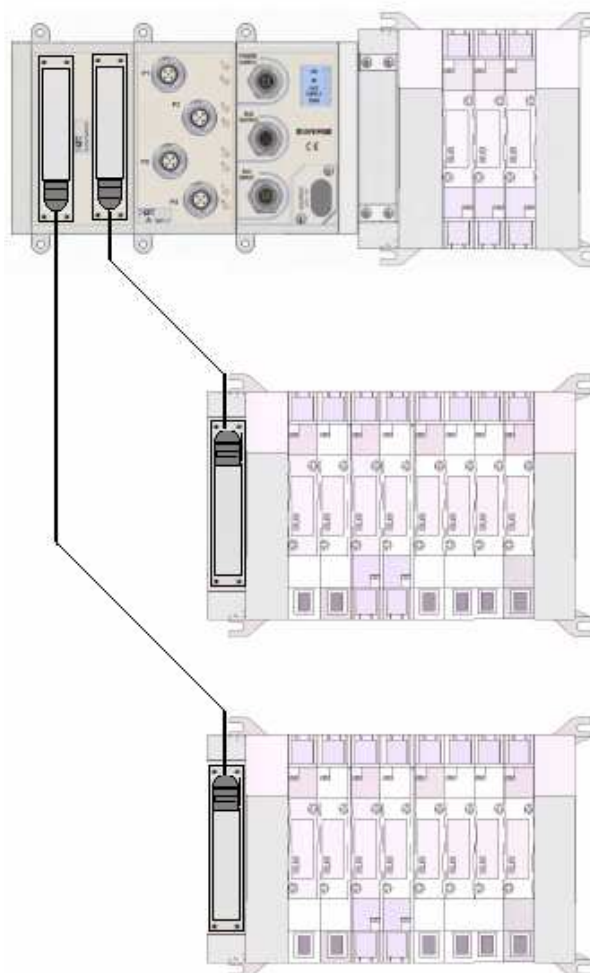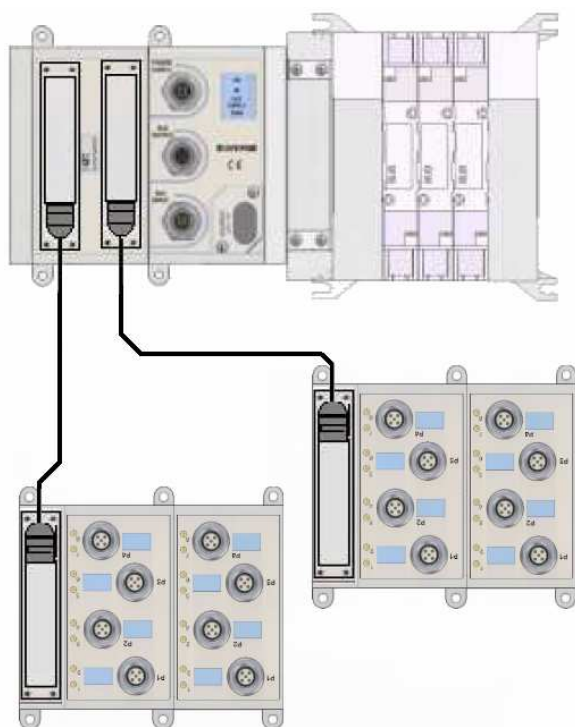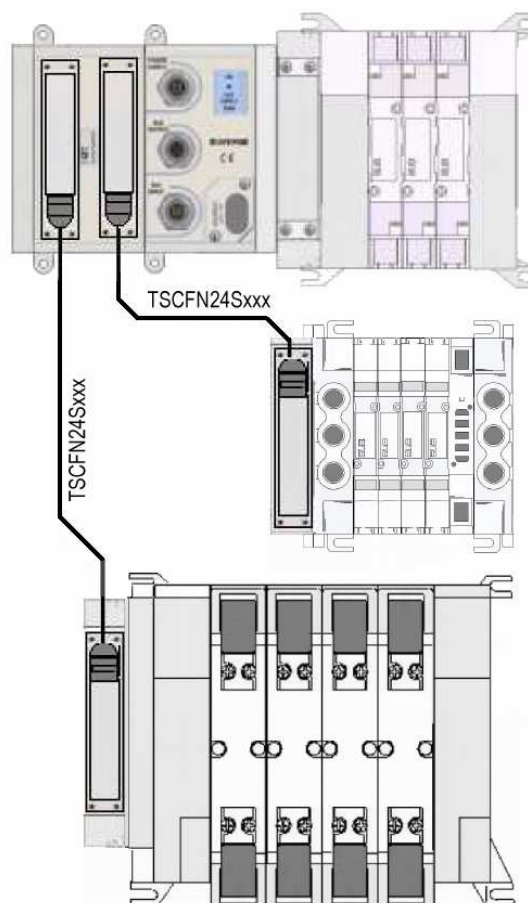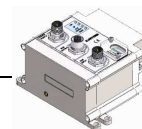
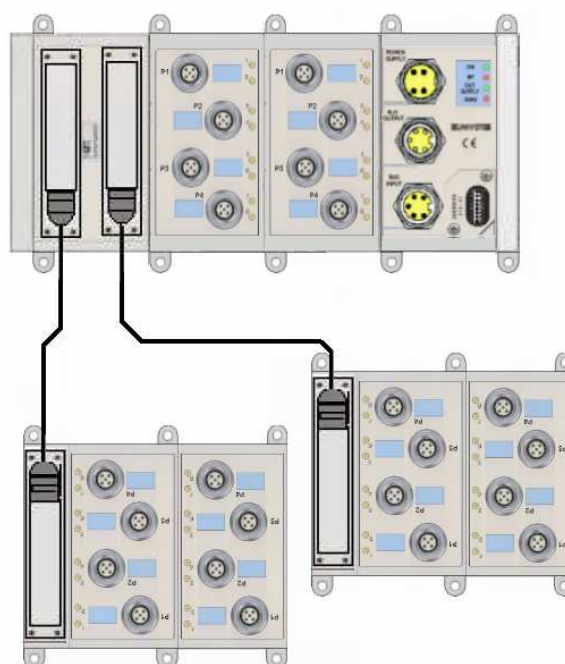**TCxx** fieldbus device with
integrated ISO VDMA MANIFOLD

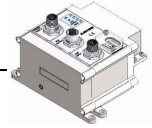**TCxx** fieldbus device with
integrated COMPACT MANIFOLD
and remote expantion module
for distribuited manifolds connection

TSCFN24Sxxx

TSCFN24Sxxx

TCxx fieldbus device with
integrated COMPACT MANIFOLD
and remote expantion module
for passive MULTIBOX modules

TExx fieldbus device with
remote expantion module
for passive MULTIBOX modules

Dangers and residual risks

There aren't residual risks that may cause damage to the health of the person exposed. In case of maintenance, the operator is alerted by a visual sign placed near the high-risky areas, where there could be voltage dangers.

Dangers caused by Improper use

It is recommended to use only original spare parts. They are to be considered including the "misuse conditions " of any modifications or changes of any kind, that the user arbitrarily.

Correct and incorrect Use

The FieldBus Slave control unit, in all its models can be used only as reported on the operative manual manufacturer. The requirements of security and reliability of the unit are guaranteed only by using original components.

Frequency of programmed maintenance

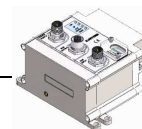The unit was designed and built so as not to require a specific scheduled maintenance.

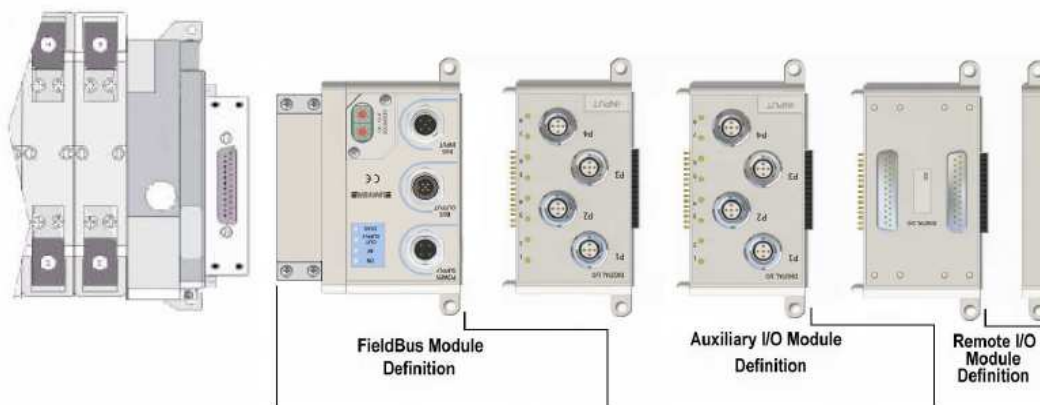## Instructions regarding removal / elimination of waste materials

If you wont to disassemble the unit is necessary to observe some basic rules to safeguard the health and the environment.

Cables, liners and plastic components, must be disposed separately from all other materials
The metal parts must be grouped by type of material.

Fieldbus ordering string definition

	FieldBus Module Definition		Auxiliary I/O Module Definition		Remote I/O Module Definition

TC	X	P	00	8	00	32IN

SERIES

TC	Manifold plugin & I/O module
TE	I/O module

SIZE

X	Standard connection M12
M	Multibus connection M23

FIELDBUS

A	AS-interface	16+16 I/O
C	CANopen	64+64 I/O
D	*DeviceNet*	64+64 I/O
I	INTERBUS S	32+32 I/O
P	PROFIBUS dp	64+64 I/O

AUXILIARY DIGITAL INPUT

N°	08-16-24-32-40-48-56-64

DIGITAL INPUT TYPE

S	M12 standard digital input
A	M12 digital input with auxiliary supply connector
8	M08 digital input

AUXILIARY DIGITAL OUTPUT

N°	08-16-24-32-40-48-56-64

DIGITAL I/O REMOTE MODULE CONFIGURATION

32IN	One module - 16+16 digital input	32 DI
64IN	Two modules - 16+16 digital input plus 16+16 digital input	64 DI
32UD	One module - 16+16 digital output	32 DO
32US	One module - 16+16 digital output + switched connector	32 DO
64UD	Two modules - 16+16 digital output plus 16+16 digital output	64 DO
64US	Two modules - 16+16 digital output plus 16+16 digital output + switched connectors	64 DO
3232	One module - 16+16 digital input plus One module - 16+16 digital input	32DI+32DO
6464	One module - 16+16 digital output plus One module - 16+16 digital output	64DI +64DO